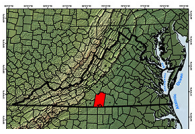
United States Department of Agriculture

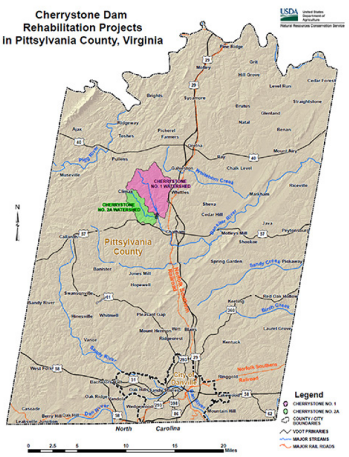
The Watershed Short Story:



The Soil Conservation Service (SCS), now the Natural Resources Conservation Service (NRCS), wrote the original Cherrystone Creek Watershed Watershed Work Plan for the Town of Chatham, Pittsylvania County, and the Pittsylvania Soil and Water Conservation District in 1965.

Cherrystone Lake (Dam 1) was completed in 1968 with a planned use of flood control and municipal water supply. Roaring Fork Lake (Dam 2A) was built in 1969 for the single purpose of flood control, but water supply was added as a secondary purpose in March 2019. The Town of Chatham is responsible for the Operation and Maintenance (O&M) for both lakes.

When Roaring Fork Lake was built, it was considered to be a significant hazard structure with the possibility of infrastructure damage downstream. In 2008, the State Division of Dam Safety changed the hazard class to high. The auxiliary spillway of the dam does not meet the needed integrity for a high hazard dam and needs to be rehabilitated.



March 2019

Dam Rehabilitation Fact Sheet

Roaring Fork Lake, Cherrystone Creek Watershed

Roaring Fork Lake, looking at the pool and riser. The lake has 115 acre-feet of sediment storage and 1,070 acre-feet of floodwater storage.

Description of Problem: NRCS identified three problems with the dam: The auxiliary spillway does not have the integrity to pass the water volume required by Virginia dam safety regulations; the footer of the riser does not meet current seismic criteria; and the toe drains are corroded. The sponsors identified water turbidity as a problem with using this reservoir for a supplemental water supply.

Sponsors: Town of Chatham, Pittsylvania County Board of Supervisors, and the Pittsylvania Soil and Water Conservation District

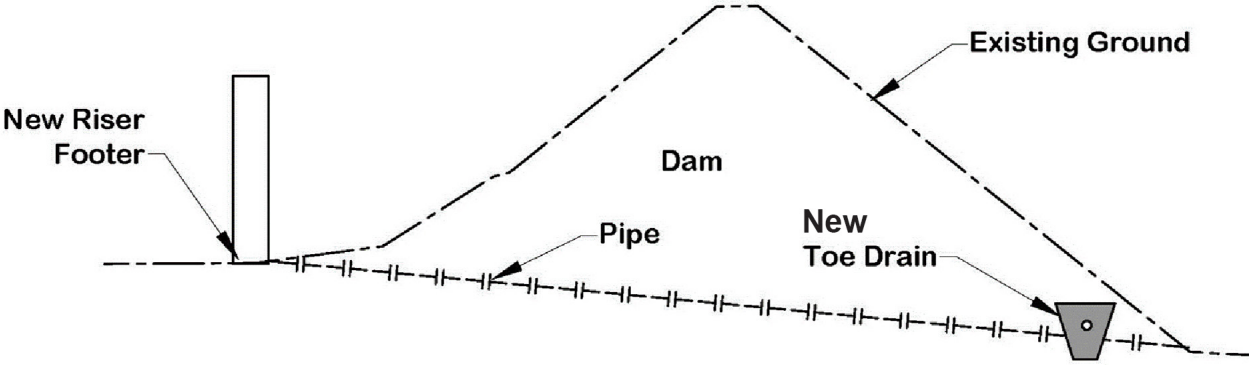
Funding: The USDA Natural Resources Conservation Service will pay 65 percent of the total project costs and up to 100 percent of the construction costs. The sponsors will be responsible for 35 percent of the total project costs. The estimated cost of this rehabilitation is $8,183,700.

Dam Rehabilitation Schedule: The Roaring Fork Lake Dam Rehabilitation Plan will be finished in June 2019. The NRCS Chief must authorize the plan for the process to continue into design and construction. Once design and construction are concluded, the dam's flood protection, recreation, and water supply benefits will continue for the next 50 years.

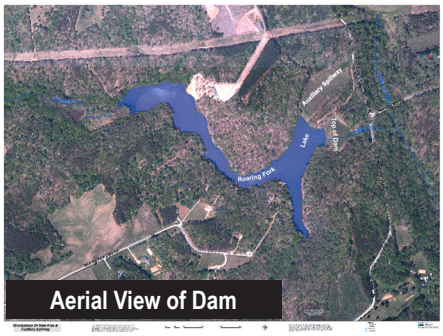
Site information:

- Drainage Area of Lake: 5.75 square miles
- Dam Height: 62 feet
- Dam Length: 400 feet
- Surface Area at Normal Pool: 15.6 acres / Surface Area at Flood Pool: 72 acres

Proposed Alternative for Upgrading Riser Footer and Installing Toe Drains



Flood control dams such as Roaring Fork Lake are designed to store flood water during storm events and gradually release it into the stream over several days through the principal spillway pipe. The principal spillway riser and pipe regulate the water level in the dam on a daily basis and control the rate at which the detained storm water is released from behind the dam. Excess water that cannot be stored in the reservoir exits through the grassy area at the end of the dam known as the auxiliary spillway.

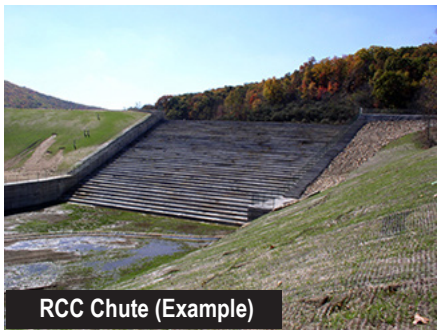

Aerial View of Dam

The plan includes the following rehabilitation items:

- A 200-foot-wide roller-compacted concrete (RCC) chute auxiliary spillway will be installed over the top of the embankment. The elevation of the concrete chute will be the same as the existing auxiliary spillway crest, which will ensure no change to the level of flood protection downstream.
- The existing auxiliary spillway will be blocked with an earthen berm.
- The footer of the principal spillway riser will be enlarged to meet seismic criteria.
- New toe drains will be installed.
- The lake will be drained during construction to access the riser footer and to allow removal of the carp and white suckers.*

Auxiliary Spillway

The Town of Chatham recently added a gate in the riser to allow Roaring Fork to be used for water supply. The base flow of Roaring Fork Creek will still contribute to the water supply even though no water will be stored during construction. Additional water needs will be met with water from Cherrystone Lake.


RCC Chute (Example)

Flood control dams also serve to trap sediment and keep it from moving downstream. In the 50 years since this dam was built, it has trapped about 46 acre-feet of sediment. As of 2019, there is enough room in the reservoir to retain sediment for the next 121 years. Therefore, sediment removal will not be included as part of the rehabilitation of the dam. Approximately 63 acre-feet of the excess sediment storage will be reallocated to water supply.

Electrofishing

** After NRCS eliminated upstream land uses as a source of turbidity, the Virginia Department of Game and Inland Fisheries used electrofishing to identify carp and white suckers as the most likely cause of the sediment in the water.*

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Natural Resources Conservation Service

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